

IN THE SPECIFICATION

Page 1, line 1 insert the following new paragraph"

-- This is related to U.S. Provisional Application No. 60/214,017 filed on June 23, 2000 and entitled "Power System for Flywheel Based Uninterruptible Power Supply". --.

On page 10, please replace the paragraph beginning on line 10 with the following revised paragraph:

An alternate configuration power system for a flywheel uninterruptible power supply in accordance with this invention is shown in Fig. 5. The power system 70 is again shown with an alternating current primary power 71 and a direct current load 72. A switched mode rectifier 73 provides a power to the DC bus 74 that supplies the load 72 under normal operating utility power. In this configuration, the flywheel 78 is accelerated using power from the DC bus 74. For ride-through or other high power applications, the switched mode rectifier would not be required and hence the flywheel could be accelerated directly from the DC bus 74 which could be at a higher voltage, for example, 400 volts. For telecommunications applications, charging the flywheel uninterruptible power supply from the output of the switched mode inverter 73 can be done if the flywheel need not be rapidly accelerated or if the flywheel and power system losses are sufficiently small. A DC-DC converter 75 is connected to the DC bus 74 to increase the voltage that is supplied to the PWM inverter 76 that drives the flywheel motor/generator 78. The voltage 77 to the generator must be increased substantially above the output voltage 72 so that regulation can occur to supply power over a wide operating range.

On page 13, please replace the paragraph beginning on line 5 with the following revised paragraph:

The output regulator can also be designed to function identically but the solid state relay can be combined into the diode bridge rectifier. An alternate configuration of an output regulator using thyristor switches in accordance with the invention is shown in Fig. 8. The voltage from the generator 121 is switched and rectified in one step using a 6 pulse controlled rectifier 123. The rectifier uses 6 thyristors 124 for regulating 3 phase power. If the motor/generator had more phases, sequentially more thyristors could be

used. Gate pulses to the thyristors when required are used to ~~regulated-regulat~~ the output voltage 122 to the required level. The gate pulses can use a complex controlled firing scheme or alternatively a simple feedback loop with the output voltage can signal turn on of all or individual thyristors. The firing of the thyristors can be electrically isolated from the higher power currents by using small pulse transformers, not shown, and integrated circuits are readily available that can provide inverse cosine weighted phase angle so that the feed back loop can be linearized. An inductor 125 and capacitor are used to smooth the output voltage. Thyristors are preferably used for the switching because they are low cost and are available up to very high current and voltage levels. They also have the advantage of automatically switching off at the zero current point, naturally commutated. Other types of switches could also conceivably be employed but with more cost and complexity.

On page 14, please replace the paragraph beginning on line 6 with the following revised paragraph:

The firing of the triacs or thyristors of the output regulator can be conducted several ways. One way to regulate the output power is to use phase angle firing. The process of power conversion of the generator voltage with phase angle firing in accordance with the invention is shown for a single phase in Fig. 10. The process 140 takes the alternating current 141 from the generator ~~141~~ and switches ~~142~~ the power, as indicated at 142, at a delayed phase angle. The phase angle delay is controlled so that more or less of the generator sine wave power is switched to the load. A smaller delay angle results in more of the sine wave power being conducted to the output. The combination of the phase angle pieces 143 can include portions from both the positive half cycle and the negative half cycles. These half portions are rectified at 144 so that they all become positive portions 145. The portions or pulses of power are then smoothed and filtered at 146 to yield a substantially constant output voltage 147.